Remarks

Claims 1, 2, 4-11, 31-44, 46-48, 54-60, and 62-65 are now pending in this application. Claims 1, 2, 4-11, 31-44, 46-48, 54-60, and 62-65 are rejected. Claims 3, 12-30, 45, 49-53, and 61 have been canceled without prejudice, waiver, or disclaimer. Claims 1, 2, 4-6, 8-11, 31-44, 46-48, 54-60, and 62-65 have been amended. No new matter has been added.

In accordance with 37 C.F.R. 1.136(a), a three-month extension of time is submitted herewith to extend the due date of the response to the Office Action dated July 16, 2003 for the above-identified patent application from October 16, 2003 through and including January 16, 2003. In accordance with 37 C.F.R. 1.17(a)(3), authorization to charge a deposit account in the amount of $950.00 to cover this extension of time request also is submitted herewith.

Applicants respectfully submit that a copy, with Examiner's initials and signature, of the information disclosure statement (PTO-1449) filed on July 26, 2001 has not been provided with the Office Action or other prior Office Actions. Applicants respectfully request that a copy of the PTO-1449 be provided.

The rejection of Claims 1, 2, 4-11, 31-44, 46-48, 54-60, and 62-65 under 35 U.S.C. § 103(a) as being unpatentable over Bessler et al. (U.S. Patent No. 5,410,230), in view of Kliman et al. (U.S. Patent No. 6,262,550) is respectfully traversed.

Bessler et al. describe an ECM drive system (300) that may be used for driving a compressor motor, fan motor, blower motor, or draft inducer fan motor (column 5, lines 37-40). The system includes a microprocessor (302) for receiving the on/off temperature signal (column 5, lines 41-42). A read only memory (ROM) 304, having software, may be used to control the operation of the microprocessor (column 5, lines 42-45). The microprocessor provides a speed or torque control signal via a line (308) to an electronically commutated motor (310) to control the speed or torque of the motor (column 5, lines 45-48). In addition, a thermostat (202) has a temperature setting feature which permits a user to indicate a preselected temperature which is a desired temperature of air surrounding the thermostat (column 4, lines 48-52). The thermostat also includes a device for measuring the temperature of the air surrounding the thermostat and generating a temperature signal such as an on/off

signal provided via a bus (204) to an indoor air moving and a compressor and condenser or evaporator outdoor units (column 4, lines 52-57).

Kliman et al. describe a Motor Monitoring System (10) composed of two similar units (12, 14) (column 3, lines 65-66). A motor Unit (12) is located at the site of a motor (16) (column 3, lines 66-67). An MCC Unit (14) is located remotely from the Motor at a Motor Control (MC) (19) or Motor Control Center (MCC) (18), such as a circuit breaker cabinet, transformer or other location where the motor is controlled and certain motor parameters may be safely measured (column 3, line 67 - column 4, line 5). The pair of monitoring units (12, 14) are connected by a Communication Link (20), which may be a high-speed bus that is a hard-wired Ethernet network or a wireless path, such as a radio or optical local-area-network (LAN) (column 5, lines 16-21).

Claim 1 recites a method for interfacing an electric motor to a controller using an electrical interface circuit, the interface circuit including a controller circuit and a motor control circuit, the controller circuit including a transmitter circuit and a receiver circuit, the motor control circuit including a transmitter circuit and a receiver circuit, and the interface circuit electrically coupled to the controller and the electric motor, the method comprising the steps of "adjusting a level of a first signal received from the controller that is separate from a thermostat configured to communicate a temperature to the controller; converting the first signal received from the controller to generate a second signal including at least one of an infrared signal and a radio frequency (RF) signal; outputting the second signal to control the electric motor; receiving a third signal from the electric motor; and transmitting the third signal from the electric motor to the controller."

Neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest a method for interfacing an electric motor to a controller using an electrical interface circuit including a controller circuit and a motor control circuit, the controller circuit including a transmitter circuit and a receiver circuit, the motor control circuit including a transmitter circuit and a receiver circuit, and the interface circuit electrically coupled to the controller and the electric motor, the method including the steps of adjusting a level of a first signal received from the controller that is separate from a thermostat configured to communicate a temperature to the controller, converting the first signal received from the controller to generate a second signal including at least one of an infrared signal and a radio frequency (RF) signal, outputting the second signal to control the electric motor, receiving a

third signal from the electric motor, and transmitting the third-signal from the electric motor to the controller.

Specifically, neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest adjusting a level of a first signal received from the controller that is separate from a thermostat configured to communicate a temperature to the controller. Rather, Bessler et al. describe measuring, by the thermostat, the temperature of the air surrounding the thermostat and generating a temperature signal such as an on/off signal, and Kliman et al. describe connecting the monitoring units by a communication link. Accordingly, the combination of Bessler et al. and Kliman et al. does not teach adjusting a level of a first signal received from the controller that is separate from a thermostat. For the reasons set forth above, Claim 1 is submitted to be patentable over Bessler et al. in view of Kliman et al.

Claims 2 and 4-11 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2 and 4-11 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2 and 4-11 likewise are patentable over Bessler et al. in view of Kliman et al.

Claim 31 recites an electrical interface circuit comprising "a controller interface circuit configured to communicate signals with a controller, said controller interface circuit including a first transmitter circuit and a first receiver circuit, and further configured to convert a voltage signal to at least one of an infrared signal and an RF signal; and a motor control interface circuit coupled to an electric motor and to said controller interface circuit, said motor control interface circuit comprising a second transmitter circuit and a second receiver circuit."

Neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest an electrical interface circuit including a controller interface circuit configured to communicate signals with a controller, the controller interface circuit including a first transmitter circuit and a first receiver circuit, and further configured to convert a voltage signal to at least one of an infrared signal and an RF signal, and a motor control interface circuit coupled to an electric motor and to the controller interface circuit, the motor control interface circuit including a second transmitter circuit and a second receiver circuit.

More specifically, neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest a controller interface circuit configured to communicate signals with a controller, the controller interface circuit including a first transmitter circuit and a first receiver circuit, and further configured to convert a voltage signal to at least one of an infrared signal and an RF signal, and a motor control interface circuit coupled to an electric motor and to the controller interface circuit, the motor control interface circuit including a second transmitter circuit and a second receiver circuit. Rather, Bessler et al. describe the microprocessor, and the electronically commutated motor, where the microprocessor provides a speed or torque control signal via a line to control the speed or torque of the motor. Kliman et al. describe the monitoring units connected by a communication link. Accordingly, the combination of Bessler et al. and Kliman et al. does not teach the controller interface circuit and the motor control interface circuit as recited in Claim 31. For the reasons set forth above, Claim 31 is submitted to be patentable over Bessler et al. in view of Kliman et al.

Claims 32-44 and 46-48 depend, directly or indirectly, from independent Claim 31. When the recitations of Claims 32-44 and 46-48 are considered in combination with the recitations of Claim 31, Applicants submit that dependent Claims 32-44 and 46-48 likewise are patentable over Bessler et al. in view of Kliman et al.

Claim 54 recites an electrical interface circuit for a HVAC system comprising an electronically commutated motor, the electrical interface comprising "a controller interface circuit configured to communicate signals with a controller, said controller interface circuit including a first transmitter circuit and a first receiver circuit, and configured to convert a voltage signal to at least one of an infrared signal and an RF signal; and a motor control interface circuit coupled to an electronically commutated motor and to said controller interface circuit, said motor control interface circuit coupled to said controller interface circuit by using a serial four-wire communications cable, said motor control interface circuit including a second transmitter circuit and a second receiver circuit, said second transmitter circuit including a first optocoupler, and said second receiver circuit including a second optocoupler, said first and second optocouplers configured to isolate signals between said motor control interface circuit and said electronically commutated motor, and said electrical interface configured to interrogate said electronically commutated motor to acquire status and diagnostic information."

Neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest an electrical interface circuit for a HVAC system including an electronically commutated motor, the electrical interface including a controller interface circuit configured to communicate signals with a controller, the controller interface circuit including a first transmitter circuit and a first receiver circuit, and configured to convert a voltage signal to at least one of an infrared signal and an RF signal, and a motor control interface circuit coupled to an electronically commutated motor and to the controller interface circuit, the motor control interface circuit coupled to the controller interface circuit by using a serial four-wire communications cable, the motor control interface circuit including a second transmitter circuit and a second receiver circuit, the second transmitter circuit including a first optocoupler, and the second receiver circuit including a second optocoupler, the first and second optocouplers configured to isolate signals between said motor control interface circuit and the electronically commutated motor, and the electrical interface configured to interrogate the electronically commutated motor to acquire status and diagnostic information.

Specifically, neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest an electrical interface circuit for a HVAC system including an electronically commutated motor, the electrical interface including a controller interface circuit configured to communicate signals with a controller, the controller interface circuit including a first transmitter circuit and a first receiver circuit, and configured to convert a voltage signal to at least one of an infrared signal and an RF signal, and a motor control interface circuit coupled to an electronically commutated motor and to the controller interface circuit, the motor control interface circuit coupled to the controller interface circuit by using a serial four-wire communications cable, the motor control interface circuit including a second transmitter circuit and a second receiver circuit, the second transmitter circuit including a first optocoupler, and the second receiver circuit including a second optocoupler, the first and second optocouplers configured to isolate signals between said motor control interface circuit and the electronically commutated motor, and the electrical interface configured to interrogate the electronically commutated motor to acquire status and diagnostic information. Rather, Bessler et al. describe the microprocessor, and the electronically commutated motor, where the microprocessor provides a speed or torque control signal via a line to control the speed or torque of the motor. Kliman et al. describe the monitoring units connected by a communication link. Accordingly, the combination of Bessler et al. and Kliman et al. does not teach the controller interface circuit and the motor control interface circuit as recited in

Claim 54. For the reasons set forth above, Claim 54 is submitted to be patentable over Bessler et al. in view of Kliman et al.

Claims 55-57 depend from independent Claim 54. When the recitations of Claims 55-57 are considered in combination with the recitations of Claim 54, Applicants submit that dependent Claims 55-57 likewise are patentable over Bessler et al. in view of Kliman et al.

Claim 58 recites an electrical interface circuit for a HVAC system comprising an electronically commutated motor, the electrical interface comprising "a controller interface circuit configured to communicate signals with a controller, said controller interface circuit including a first transmitter circuit and a first receiver circuit, said controller interface circuit configured to convert a voltage signal to at least one of an infrared signal and an RF signal; and a motor control interface circuit coupled to an electronically commutated motor and to said controller interface circuit, said motor control interface circuit coupled to said controller interface circuit by using a digital wireless interface, said motor control interface circuit including a second transmitter circuit and a second receiver circuit, said second transmitter circuit including a first optocoupler, said second receiver circuit including a second optocoupler, said first and second optocouplers configured to isolate signals between said motor control interface circuit and said electronically commutated motor, and said electrical interface configured to interrogate said electronically commutated motor to acquire status and diagnostic information."

Neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest an electrical interface circuit for a HVAC system including an electronically commutated motor, the electrical interface including a controller interface circuit configured to communicate signals with a controller, the controller interface circuit including a first transmitter circuit and a first receiver circuit, the controller interface circuit configured to convert a voltage signal to at least one of an infrared signal and an RF signal, and a motor control interface circuit coupled to an electronically commutated motor and to the controller interface circuit, the motor control interface circuit coupled to the controller interface circuit by using a digital wireless interface, the motor control interface circuit including a second transmitter circuit and a second receiver circuit, the second transmitter circuit including a first optocoupler, the second receiver circuit including a second optocoupler, the first and second optocouplers configured to isolate signals between said motor control interface circuit and the

electronically commutated motor, and the electrical interface configured to interrogate the electronically commutated motor to acquire status and diagnostic information.

Specifically, neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest an electrical interface circuit for a HVAC system including an electronically commutated motor, the electrical interface including a controller interface circuit configured to communicate signals with a controller, the controller interface circuit including a first transmitter circuit and a first receiver circuit, the controller interface circuit configured to convert a voltage signal to at least one of an infrared signal and an RF signal, and a motor control interface circuit coupled to an electronically commutated motor and to the controller interface circuit, the motor control interface circuit coupled to the controller interface circuit by using a digital wireless interface, the motor control interface circuit including a second transmitter circuit and a second receiver circuit, the second transmitter circuit including a first optocoupler, the second receiver circuit including a second optocoupler, the first and second optocouplers configured to isolate signals between said motor control interface circuit and the electronically commutated motor, and the electrical interface configured to interrogate the electronically commutated motor to acquire status and diagnostic information. Rather, Bessler et al. describe the microprocessor, and the electronically commutated motor, where the microprocessor provides a speed or torque control signal via a line to control the speed or torque of the motor. Kliman et al. describe the monitoring units connected by a communication link. Accordingly, the combination of Bessler et al. and Kliman et al. does not teach the controller interface circuit and the motor control interface circuit as recited in Claim 58. For the reasons set forth above, Claim 58 is submitted to be patentable over Bessler et al. in view of Kliman et al.

Claims 59-60 and 62-65 depend from independent Claim 54. When the recitations of Claims 59-60 and 62-65 are considered in combination with the recitations of Claim 58, Applicants submit that dependent Claims 59-60 and 62-65 likewise are patentable over Bessler et al. in view of Kliman et al.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 1, 2, 4-11, 31-44, 46-48, 54-60, and 62-65 be withdrawn.

Moreover, Applicants respectfully submit that the Section 103 rejection of Claims 1, 2, 4-11, 31-44, 46-48, 54-60, and 62-65 is not a proper rejection. As is well established,

obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Bessler et al. nor Kliman et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to combine Bessler et al. with Kliman et al. because there is no motivation to combine the references suggested in the art.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

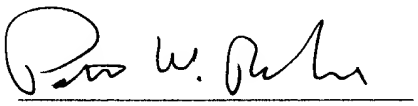
Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Bessler et al. teach measuring, by the thermostat, the temperature of the air surrounding the thermostat and generating a temperature signal such as an on/off signal. Bessler et al. also teaches the microprocessor, and the electronically commutated motor, where the microprocessor provides a speed or torque control signal via a line to control the speed or torque of the motor. Kliman et al. teach connecting the monitoring units by a communication link and teach the monitoring units connected by a communication link. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present

invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claims 1, 2, 4-11, 31-44, 46-48, 54-60, and 62-65 be withdrawn.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 1, 2, 4-11, 31-44, 46-48, 54-60, and 62-65 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



Patrick W. Rasche
Registration No. 37,916
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070